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New Genera and Subgenera of Augochlorine Bees (Hymenoptera: Halictidae)[1]

By

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CONTENTS

ABSTRACT Two new augochlorine genera, *Chlerogelloides* and *Xenochlora*, and three new subgenera, *Megalopta* (*Noctoraptor*), *Megommation* (*Stilbochlora*), and *Megommation* (*Cleptommation*), are described and figured. Three new combinations are made: *Megommation minutum* (Friese), *Xenochlora nigrofemorata* (Smith), and *Xenochlora ianthina* (Smith). Six new species are described: *Chlerogelloides femoralis*, *Xenochlora ochrosterna*, *Xenochlora chalkeos*, *Megalopta* (*Noctoraptor*) *byroni*, *M.* (*N.*) *noctifurax*,

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and *Megommation* (*Stilbochlora*) *eickworti*. *Megalopta* (*Noctoraptor*) and *Megommation* (*Cleptommation*) are parasitic, possibly on other species of *Megalopta* and *Megommation*, respectively, and together increase the number of origins of cleptoparasitism in the tribe Augochlorini to three. For each genus-group taxon, modified key couplets are provided for Eickwort's key to the genera of Augochlorini.

Key words: Bees; Halictidae; Augochlorini; *Chlerogelloides*; *Megalopta*; *Megommation*; *Xenochlora*; cleptoparasites; nocturnal; neotropics.

INTRODUCTION

The Augochlorini is a New World tribe of sweat bees (Halictinae) with their greatest diversity in the tropics. Many species are brilliant metallic green, hence the name Augochlorini (Gr. *auge* = shine, *chloros* = green), although coloration throughout the tribe varies widely. The tribe can be recognized from other New World halictine bees by the absence of a pygidial plate on Tergum VII of males, the presence of a spiculum on Sternum VIII of males, and the presence of a medio-apical cleft in Tergum V of females. The genera of the Augochlorini were last revised by Eickwort (1969), and since the time of his work only three genera have been added: the extant genera *Micrommation* (Moure, 1969) and *Ischnomelissa* (Engel, in press), and the Dominican Oligo-Miocene amber genus *Oligochlora* (Engel, 1996). Herein we describe two new genera and three new subgenera of augochlorine bees; these are based primarily on newly discovered species.

Two of the groups presented below, *Noctoraptor* and *Cleptommation*, are parasitic with females possessing the usual suite of parasitic characters—reduced scopa, large scythe-like mandibles, and absence of the basitibial plate. Previously the only parasitic augochlorines were species of the genus *Temnosoma* Smith. *Temnosoma* is a close relative of *Augochloropsis* Cockerell, but neither is closely related to the newly discovered parasitic species. The new parasitic taxa represent new subgenera of the genera *Megalopta* Smith and *Megommation* Moure respectively. Because of the systematic position of these taxa, the number of independent origins of cleptoparasitism in the Augochlorini is increased to three.

Herein we provide modified couplets for Eickwort's (1969) key to the genera of Augochlorini. Couplet numbers are from Eickwort (1969), except those numbers with primes which need to be inserted into his keys. The keys provided for the subgenera of *Megalopta* and *Megommation* are new and the numbers do not refer to Eickwort's keys. Instead, these keys should be used in combination with Eickwort (1969). A complete reclassification and new key to the genera and subgenera of the Augochlorini is currently in preparation by the senior author. The phylogenetic position of these taxa will be treated in a forthcoming paper on cladistic relationships among the genera and subgenera of Augochlorini by Engel.

ACKNOWLEDGMENTS

We are indebted to discussions with C. D. Michener regarding characters and names for these new taxa. W. E. Duellman, C. D. Michener, and L. Packer kindly examined an earlier version of the manuscript and provided valuable criticisms. Their insights greatly improved the final version. Additionally, we are thankful to the following institutions and curators who graciously provided material used in this study: American Museum of Natural History, New York, New York, J. G. Rozen, Jr., and E. Quinter (AMNH); Bohart Museum, University of California, Davis, California, L. S. Kimsey (UCDC); British Museum, Natural History, London, S. Lewis and G. Else (BMNH); Cornell University Insect Collection, Ithaca, New York, J. K. Liebherr and E. R. Hoebeke (CUIC); Mississippi State Insect Collection, Mississippi State, Mississippi, R. L. Brown (MEMC); Museum National d'Histoire Naturelle, Paris, J. Casevitz-Weulersse (MNHN); Natural History Museum of Los Angeles County, Los Angeles, California, R. R. Snelling (LACM); Division of Entomology, Natural History Museum, University of Kansas, Lawrence, Kansas, R. W. Brooks (SEMC); University of Arkansas, Fayetteville, Arkansas, S. Cameron (UADE); Utah State University, USDA Bee Biology and Systematics Laboratory, Logan, Utah, T. L. Griswold (EMUS); Department of Biology, York University, North York, Ontario, L. Packer (PACK); Museo de Invertebrados, Instituto Humboldt, Santa Fé de Bogotá, Colombia, F. Fernández (IHUM); Provincial Museum of Alberta, Edmonton, Alberta, A. Finnamore (PMAE); United States National Museum, Washington, D.C., R. J. McGinley (USNM); Smithsonian Tropical Research Institute, Panamá City, Panamá, D. W. Roubik (STRI); Zoologisches Museum, Humboldt-Universität, Berlin, F. Koch and A. Kleine-Möllhoff (ZMHB); and the Museu de Entomologia Padre Jesús Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Brazil, J. S. Moure (DZUP).

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We take this opportunity to dedicate this work to the memory of Byron A. Alexander who passed away 30 November 1996. Byron was an esteemed colleague and dear friend. His work will continue to have an influence on our work and lives. We are pleased to have known him.

METHODS

In the descriptions the following abbreviations are used: F, flagellomere; S, sternum; T, tergum. All measurements were made using an ocular micrometer on a WILD-M5a microscope. Total body length was determined by summing the individual lengths of the tagmata. Measurements are presented only for holotypes and allotypes. Abbreviations for collections that provided the specimens used in this study are included in the acknowledgments.

TAXONOMY

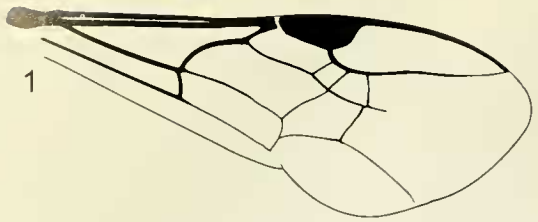
Chlerogelloides new genus

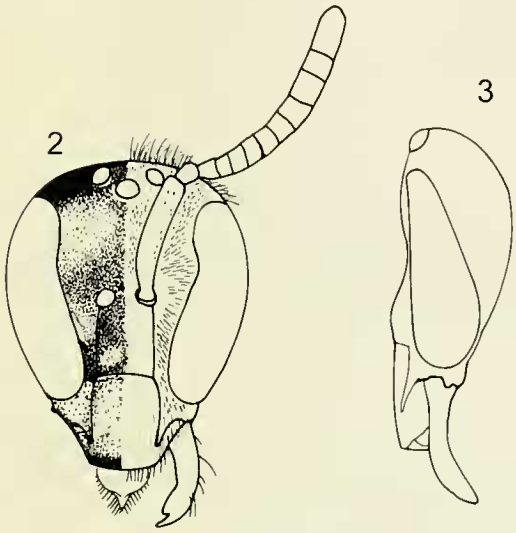
Type species.—*Chlerogelloides femoralis* Engel, Brooks and Yanega, new species.

Diagnosis.—In size and appearance this genus resembles *Chlerogella* Michener. The elongated head suggests both *Chlerogella* and *Chlerogas* Vachal. However, the elongation is produced by the greatly lengthened clypeus and supraclypeal region in *Chlerogelloides*, whereas in both *Chlerogas* and *Chlerogella* the elongation is produced by greatly lengthened malar spaces. Both *Chlerogella* and *Chlerogelloides* share a peculiar inflation of the pronotal dorsal surface, which also is glabrous or finely imbricate. The new genus can be separated from *Chlerogella* by the unique structure of the epistomal sulcus, short malar space, serrate inner hind tibial spur of females, and the modified midlegs of males. Eickwort (1969) did not have males of *Chlerogella* or females of *Chlerogas*; however, both genera are now known from both sexes and multiple species. Revisions of *Chlerogas* and *Chlerogella* have been completed and will be presented elsewhere.

Description.—The following description is based on the type and only species:

Female: Epistomal sulcus sharply acute, strongly protruding into clypeus as a long thin projection (Fig. 2); head partly elongated due to greatly lengthened clypeus; clypeus flat, supraclypeal area gently rounded and slightly protuberant; malar space short, length one-fifth of mandibular width; midregion of face sunken around antennal socket (Fig. 3); preoccipital ridge rounded; inner orbit of compound eye moderately emarginate; eyes weakly convergent below; eye hairs absent; ocelli of normal size, ocellarocular width equal to 3 ocellar diameters; ocellar furrow absent; vertex short, roughly one ocellar diameter in length; labrum low in profile, distal process narrowly triangular, basal elevation orbiculate and barely evident, teeth absent; mandible slender, bidentate and blunt; subapical tooth well defined; hypostomal ridge feebly carinate anteriorly, carina disappearing posteriorly one-half way to occiput, anterior angle rounded; distal portion of maxilla long and narrow; galeal apex lobed and bearing a large scale like seta; inner strip of galea with setae and cuticular markings; base of galea reaching to base of stipes; galeal comb absent; maxillary palp normal; pre-mentum narrowed and elongated, more than 15 times longer than wide; salivary plate with V-shaped brace; length of segments 2+3 of labial palp roughly equal to segment 1; glossa long, 1.75 times length of prementum. Dorsal surface of pronotum convex and swollen; pronotal lateral angle obtuse, not produced; lateral ridge absent; dorsal ridge rounded; mesoscutum weakly narrowed anteriorly; mesoscutal lip absent; tegula rounded; propodeal triangle smooth, with median impression, dorsal area of propodeum longer than scutellum and metanotum combined; propodeal dorsal ridge (interface between propodeal triangle and posterior surface) rounded; lateral ridge (interface between lateral and posterior surfaces) rounded, ridges slightly divergent; propodeum slightly narrowed posteriorly; pit of posterior face narrow. Apex of marginal cell acute, venation as in Figure 1. Anterior basitarsal brush absent; inner hind tibial spur serrate, teeth sharp; scopa formed of scattered long, plumose hairs on hind femur





Figs. 1–4. *Chlerogelloides femoralis*, female holotype: 1.—Forewing. 2.—Head, front view; left side shows punctation, right pubescence. 3.—Head, side view. 4.—Hind leg, anterior view.

and anteriorly on hind tibia (Fig. 4); basitibial plate not well defined, represented by shiny, hairless, slightly elevated area. Cleft of T5 present as a shallow, wide depression. Cuticle of bee relatively thin.

Male: As described for the female with the following modifications: Antenna of moderate length (Figs. 5, 6); F1 longer than F2; sensory plate areas present; scape short, barely reaching to median ocellus; labral basal elevation absent; distal process absent; mandible long and thin with a strong double curve towards apex (Figs. 6, 7); gena and postgena with long, plumose, hairs (Fig. 6). Forecoxa apically with hairs similar to those of gena and postgena towards apex; mesofemur greatly swollen and glabrous, inner surface slightly concave with tooth near apex (Fig. 9); inner surface of mesotibia glabrous with small tooth at base; outer surface of mesobasitarsus with strong tooth, inner surface glabrous (Fig. 8); inner surface of hindcoxa with lamella running from base to apex. Metasoma elongated but not petiolate; apical margins of S3-5 unmodified; apical margin of S6 emarginate (Fig. 10); S7 with bilobed median apical projection (Fig. 11); S8 with median apical projection, spiculum narrow. Basal process of gonostylus absent; parapenial lobe present, without setae; venter of penis valve with prong (Fig. 12).

Etymology.—The suffix *-oides*, meaning "like" or "resembling", refers to the resemblance of this genus to the genus *Chlerogella* Michener; accordingly the name is feminine.

Identification.—In order to identify properly *Chlerogelloides* using Eickwort's (1969) key to genera the following modifications are required.

Females

3 Compound eyes greatly enlarged, projecting above vertex and nearly reaching enlarged lateral ocelli and subantennal sulci; basitibial plate normal, much surpassing apex of femur ..... *Megaloptidia*

— Eyes not greatly enlarged; basitibial plate variable .... 3′

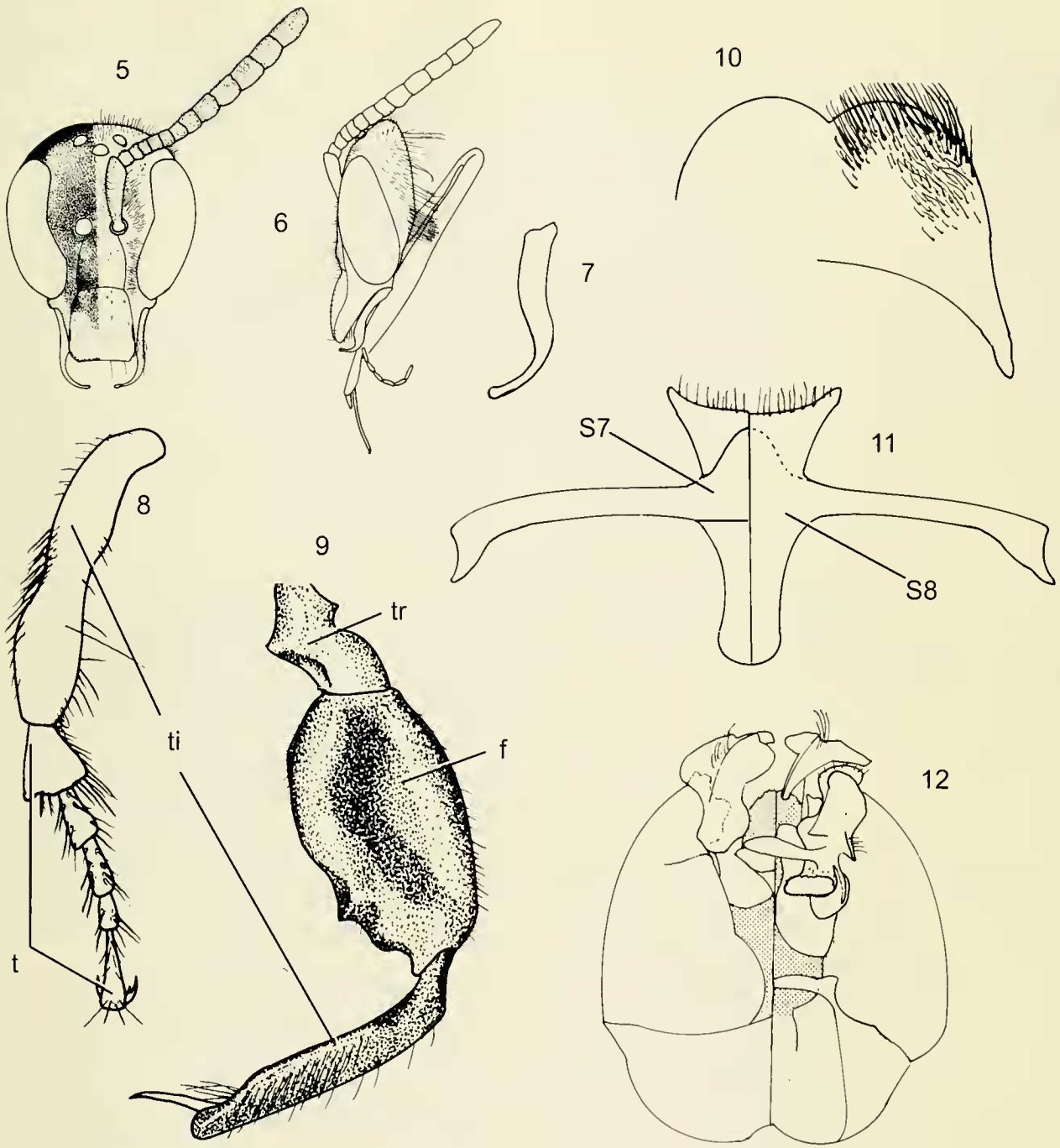
3′ Pronotal dorsal surface swollen; epistomal sulcus forming a deeply acute angle; head elongated due to greatly lengthened clypeus; inner hind tibial spur serrate ..... *Chlerogelloides*

— Pronotal dorsal surface normal, not swollen; epistomal sulcus approximately orthogonal; head not greatly elongated; inner hind tibial spur pectinate or serrate ..... *Megommation*

Males

3 Compound eyes greatly enlarged, projecting above vertex and nearly reaching enlarged lateral ocelli and subantennal sulci; S4 bilobed with deep median notch ..... *Megaloptidia*

— Compound eyes not greatly enlarged; S4 not bilobed ..... 3′



Figs. 5–12. *Chlerogelloides femoralis*, male allotype: 5.—Head, front view; left side shows punctation, right pubescence. 6.—Head, side view. 7.—Mandible, anterior inner view. 8.—Midtibia and tarsus, outer view. 9.—Midtro-chanter, femur, and tibia, anterior view. 10.—S6, ventral view. 11.—S7 and S8, left half is dorsal, right is ventral view. 12.—Genital capsule; left half is dorsal, right is ventral view. Abbreviations: f = femur, S = metasomal sterna, t = tarsus, ti = tibia, tr = trochanter.

3′ Pronotal dorsal surface swollen; epistomal sulcus forming a deeply acute epistomal sulcus; head elongated due to greatly lengthened clypeus; mesofemur and mesotibia greatly swollen ..... *Chlerogelloides*

— Pronotal dorsal surface normal, not swollen; epistomal sulcus approximately orthogonal; head not greatly elongated; midlegs unmodified ..... *Megommation*

Chlerogelloides ***femoralis*** new species
(Figs. 1–12)

Holotype.—ECUADOR: *Napo:* female, Jatun Sacha Biological Station, 21 km E. Puerto Napo, 400 m, 18 July 1994, Francois Génier, flight intercept trap (SEMC).

Allotype.—ECUADOR: *Sucumbios:* male, Sacha Lodge, 0.5° S 76.5°W, 270 m, 1–31 December, 1994, P. Hibbs, malaise trap (SEMC).

Paratypes.—BRAZIL: *Amazonas:* 1 male, Manaus, July 1962, F.M. Oliveira (DZUP). COLOMBIA: *Putumayo:* 1 female, Mocoa, 16 July 1978, M. Cooper, B.M. 1978-431 (BMNH). 1 female, Villa Garzon, 8 mi. S. Mocoa, 19 July 1978, M. Cooper, B.M. 1978-431 (BMNH). ECUADOR: *Morona:* 2 females, Santiago, Miazal, 50 km SE Macas, 1–4 July 1993, 300 m, M. and J. Wasbauer (EMUS). *Napo:* 1 male, Misahualli, 1 hr. down Río Napo, 19 February 1983, L. Huggert (PACK). 2 males, Puerto Misahualli, 350 m, February 1983, Sharkey (PMAE). *Sucumbios:* 1 male, Sacha Lodge, 0.5°S 76.5°W, 21 November–1 December 1994, P. Hibbs, malaise trap (LACM). 1 male, same but 14–24 May 1994 (LACM). 4 females, same but 1–31 December 1994 (LACM). FRENCH GUIANA: 1 female, Roura, 8.4 km SSE, 200m, 4°40'41"N,52°13'25"W, 25–29 May 1997; J.Ashe, and R.Brooks, FG1AB97 088, ex: flight intercept trap. PERU: *Loreto:* 1 female, nr. Iquitos, 5–14 July 1985, G. Burrows (MEMU).

Diagnosis.—As for the genus.

Description.—The following description is based on the holotype female and allotype male:

Female

Structure: Total body length 6.58 mm; fore wing length 4.40 mm (Fig. 1). Head elongated (length 1.70 mm; width 1.38 mm) (Fig. 3). Clypeus longer than wide (width measured between sulci; length 0.54 mm; width 0.34 mm), almost all of clypeus below lower tangent of compound eyes; supraclypeal area longer than wide (length 0.42 mm; width 0.32 mm). Frontal line carinate between antennae, becoming a weakly impressed line just above level of antennae. Scape short, length 0.64 mm; pedicel longer than F1; F1 slightly longer than F2, as long as wide; F2–4 slightly wider than long; F5 as long as wide; F6–10 progressively longer than wide. Distance from median ocellus to lateral ocellus 0.08 mm (1.8 ocellar diameters); between lateral ocelli 0.18 mm; lateral ocellus to compound eye 0.22 mm. Gena 0.67 width of compound eye in profile (Fig. 3). Prementum length 1.68 mm (16x longer than wide); width 0.08 mm. Glossa length 1.64 mm. Medial and parapsidal lines of mesoscutum moderately impressed; intertegular distance 0.86 mm. Scutellum roughly one and a half times longer than metanotum. Dorsal area of propodeum longer than scutellum and metanotum combined. First submarginal cell longer than second and third combined (Fig. 1); second short, parallel-sided, third with anterior margin equal to second, much broader below. Pterostigma relatively large, broadest apically; posterior margin (in submarginal cell) almost straight (Fig. 1). Basal vein almost confluent with cu-v (offset by about the width of a vein); 1r-m confluent with 1m-cu; 2r-m distal to 2m-cu (offset by about 1.5 times width of vein), 2r-m relatively straight. Distal hamuli arranged 2-1-2.

Color and sculpturing: Mandible mostly yellow, apex reddish brown. Clypeus yellow, basally with metallic green highlights (apex of epistomal lobe also darkened); smooth with few weak punctures. Paraocular area below antennal socket slightly green to yellow. Remainder of head metallic green. Supraclypeal area weakly convex with weak punctures laterally, impunctate medially. Scape mostly yellow, apex brown above; remainder of antenna dark brown. Face smooth and shining, with a few widely scattered, minute punctures. Vertex, gena and postgena smooth; vertex weakly impressed between lateral ocelli. Prothorax yellow, smooth and shining. Mesoscutum and scutellum metallic green, smooth and shining, with widely scattered minute punctures. Tegula dark brown and smooth. Axilla yellow. Metanotum metallic green, dorsolateral metanotal area yellow; sculptured as scutellum. Pleura yellow, except upper half of mesepisternum metallic green; smooth. Wings hyaline; veins of both fore- and hind wing black. Fore- and mid-leg yellow. Hind coxa and trochanter yellow, remainder of hind leg yellow-brown. Propodeal triangle brown medially, remainder yellow; entirely smooth and shining. Propodeal lateral and posterior surfaces yellow; lateral surface with weak dorso-ventral striations, otherwise smooth; posterior surface smooth. T1-4 yellow on discs with apical third to half brown, brown borders progressively increasing in length; T5 brown; all terga finely imbricate. Sterna all yellow and finely imbricate.

Pubescence: Clypeus and supraclypeal area with widely scattered erect to suberect simple, golden hairs. Face with fine erect golden hairs radiating from antennal bases, not obscuring surface, becoming sparser and more erect near ocelli. Vertex with scattered long, golden hairs posteriorly which extend below onto gena and postgena. Scape with fine hairs on dorsal surface, flagellar setation a mix of fine, short, erect hairs and scale-like setae; the latter largely absent basally and dense from F3 distad. Pronotum with scattered very long erect hairs. Mesoscutum with numerous, short, suberect fine hairs, among which are scattered some longer, more erect hairs. Tegula with setae on anterior border. Pubescence of scutellum as on mesoscutum, except hairs at least twice as long. Metanotum as scutellum, also with numerous shorter, suberect hairs not obscuring surface. Scattered yellow hairs on pleura. Pubescence of legs golden, palest basally and ventrally, and darkened some-

what at the dorsal apices of mid and hind tibiae. Mesofemoral brush and mesotibial comb present, fore basitarsal brush absent, mid and hind basitarsal brushes well-developed, fore basitarsus with relatively long hairs anteriorly. Hind trochanters and femora with scattered, highly plumose scopal hairs, with numerous fine, curling branches. Hind tibiae with sparse, long simple hairs dorsally, but ventral scopal hairs thickened basally and highly divided at tips; these scopal hairs longest at middle of tibia, arranged in essentially one or two rows, plumose hairs not greatly exceeding 25 or so over entire tibial surface. Propodeum dorsally bare, lateral and posterior surfaces with long, yellow setae. T1 with long, yellow hairs on anterior surface, dorsally with few short hairs and a bare apical margin. T2-4 with discal hairs becoming progressively longer posteriorly, apical areas bare. T5 densely pubescent, with numerous short, black hairs, among which are interspersed golden hairs, these becoming very long laterally. Sterna with long, yellow hairs restricted to apical margins.

Male

As described for the female with the following additions: Total body length 5.38 mm; fore wing length 4.31 mm. Head elongated (length 1.90 mm; width 1.38 mm) (Figs. 5, 6). Scape length 0.93 mm; pedicel as long as F1; F1 longer than F2, as long as wide; F2–5 slightly wider than long; F6 as long as wide; F7–11 progressively longer than previous flagellomeres. Distance from median ocellus to lateral ocellus 0.10 mm; between lateral ocelli 0.32 mm; lateral ocellus to compound eye 0.31 mm, 3 ocellar widths in length. Intertegular distance 1.56 mm. Mandible simple, apically spoon-shaped (Fig. 7). Midfemur dilated, with anterior longitudinal concavity and ventral tooth anterosubapically (Fig. 9); midtibia and basal tarsomere modified (Fig. 8). Male terminalia as in Figures 10–12.

Coloration and pubescence as described in the female, except for the usual sex differences and those additional differences discussed under the generic description.

Etymology.—The specific epithet refers to the modified midlegs of the male. The name was suggested by Padre J. S. Moure 40 years ago when he independently recognized this species (as a new species of *Megommation*) but never published on it. We are grateful to him for allowing us to use this name and to publish it here.

Variation.—The two specimens from Miazal, Ecuador, have the green metallic coloration of the pleura reduced to only the hypoepimeron. In the Peruvian specimen the pleura have no trace of green.

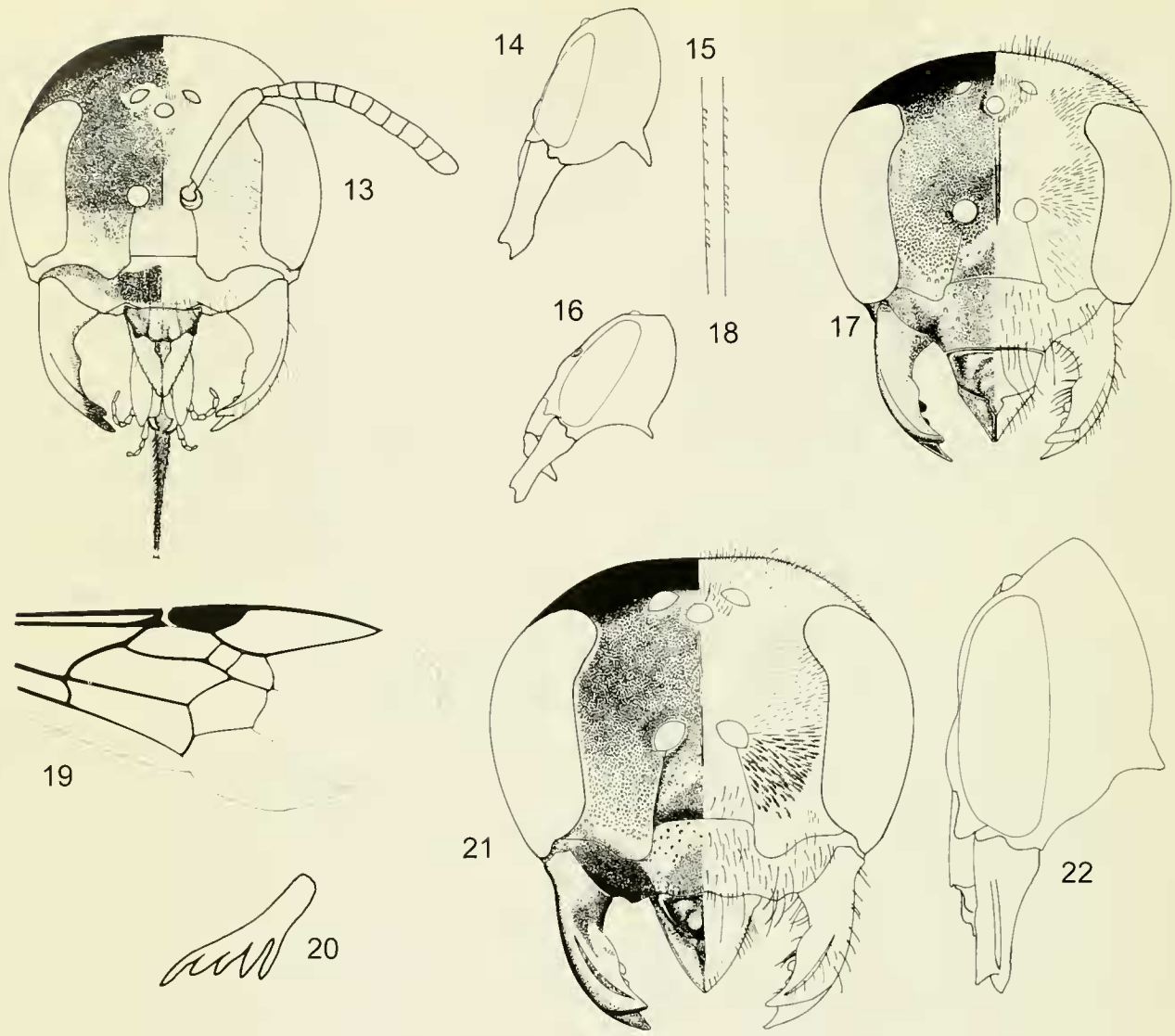
Xenochlora new genus

Type species.—*Xenochlora ochrosterna* Engel, Brooks and Yanega, new species.

Diagnosis.—In some ways *Xenochlora* resembles macrocephalic females of *Rhinocorynura* [e.g., *Rhinocorynura inflaticeps* (Ducke)], but it shares more trifling features with *Megalopta*. From the first genus *Xenochlora* can be separated by the acutely angled epistomal sulcus, carinate dorsal ridge, presence of an ocellar furrow, and lack of a galeal comb. *Xenochlora* shares with *Megalopta* the presence of an ocellar furrow and a basal expansion of the labral keel which are unknown in other augochlorine genera. This genus differs from *Megalopta* in the normally sized ocelli (two all blackish-brown species of *Megalopta*, *M. byroni*, and an undescribed species, to be described in a future paper, have ocelli intermeditate in size between those of typical *Megalopta* and those of *Xenochlora*), the dense stiff black setae on the hind tibia and basitarsus, and the smaller number of hamuli on the hind wing which exhibit a typical spacing pattern as seen in other genera (in *Megalopta* these are numerous and closely packed, without any uneven spacing between the hamuli). Two species previously described by F. Smith as species of *Megalopta*, *M. ianthina* and *M. nigrofemorata*, are included here as species of *Xenochlora*.

Description.—The following description is based on the females of all included species:

Female: Epistomal sulcus acute, slightly protruding into clypeus (Figs. 13, 17, 21); clypeus flat, short and extremely broad, supraclypeal area convex (Figs. 14, 16, 22); malar space very short, length one-tenth mandibular width; preoccipital ridge rounded; inner orbit of compound eye weakly emarginate; eyes weakly divergent below; eye hairs apparently absent; ocelli not enlarged (Fig. 13); ocellar furrow present (deeply impressed line running between and just behind the lateral ocelli); vertex swollen; labral basal elevation suborbiculate and bicallose with slight medial impression and rounded lateral lobes; distal process broadly triangular; keel expanded basally; teeth absent; mandible strongly bidentate, with a ridge on inner surface forming two short supplementary inner teeth; this ridge curving upwards to join inner mandibular margin at base of low, rounded marginal tooth (Fig. 13); hypostomal ridge lamellate, protruding beyond posterior border of head (not the same as the genal projections depicted in Figures 14, 16, or 22), anterior angle rounded; distal portion of maxilla normal; galeal inner strip with setae and cuticular markings, apex rounded; galeal comb absent; maxillary palp normal; prementum normal; salivary plate without V-shaped brace; segments 2+3 of labial palp together slightly longer than 1; glossa long (Fig. 13), 0.85 times length of prementum. Pronotal lateral angle upturned dorsally to form an acute projection above mesoscutal lip, margin between angles concave; lateral ridge sharply angled and carinate; dorsal ridge lamellate but strongly appressed to anterior mesoscutum, margin



Figs. 13–22. *Xenochlora:* 13–15.—*X. ochrosterna*, female holotype. 13.—Head, front view; left side shows punctation, right pubescence. 14.—Head, side view. 15.—distal hamuli on anterior margin of hind wing. 16–18.—*X. chalkeos*, female holotype. 16.—Head, side view. 17.—Head, front view; left side shows punctation, right pubescence. 18.—Distal hamuli on anterior margin of hind wing. 19–20.—*X. ochrosterna*. 19.—Forewing. 20.—Inner hind tibial spur. 21–22.—*X. nigrofemorata* (Smith), female. 21.—Head, front view; left side shows punctation, right pubescence. 22.—head, side view.

not projecting; mesoscutum broadly rounded anteriorly, lip low and rounded; tegula rounded; propodeal triangle short, subequal in length to metanotum, strongly declivious; propodeal dorsal ridge rounded; lateral ridge rounded, ridges slightly divergent; propodeum slightly narrowed posteriorly; pit of posterior surface narrow and shallow. Marginal cell with apex acute, venation as in figure 19; distal hamuli arranged 3-1-1-1-1-4 (Fig. 15) or 2-1-1-1-4 (Fig. 18), not closely and evenly spaced as in *Megalopta* (Fig. 24). Anterior basitarsal brush present; inner hind tibial spur pectinate, all teeth long (Fig. 20); scopa formed of long, plumose hairs on hind femur and long, dense, mostly simple hairs on hind tibia; hind tibia and basitarsus covered with stiff, black setae; basitibial plate oval, of moderate size, anterior margin not defined. Metasoma unmodified.

Male: Unknown.

Etymology.—The name is a combination of *xeno* (Gr. strange) and *chlora* (Gr. green), from *Augochlora*, type genus of the Augochlorini. The name is feminine.

Identification.—Eickwort's (1969) key to females should be modified accordingly. The male for *Xenochlora* remains undiscovered.

Females

16 Epistomal sulcus deeply lobed; labrum with dorsal keel expanded basally; mandible usually with supplementary teeth, if so, then scopa present ..... 16′

— Epistomal sulcus variously angled, not produced into clypeus; dorsal keel on labral apical process not expanded basally; mandible usually without supplementary teeth; scopa always present 17

16′ Ocelli usually enlarged, ocellocular distance equal to, or less than one ocellar diameter; distal hamuli numerous and closely packed, without spacing (Fig. 24); hind tibia entirely covered with amber setae ..... *Megalopta*

— Ocelli normal, ocellocular distance two or more ocellar diameters; hamuli normally spaced (Fig. 15); hind tibia and basitarsus mostly to entirely covered with black setae ..... *Xenochlora*

Xenochlora ***ochrosterna*** new species
(Figs. 13–15, 19, 20)

Holotype.—Peru: *Loreto:* female, Campamento San Jacinto, 2°18.75′S, 75°51.77′W, 7 July 1993, 175–215 m, Richard Leschen #44, flight intercept trap (SEMC).

Diagnosis.—Clypeus dark brown. Upper half of face black with metallic blue-green highlights. Apical third of scape dark brown. Metasomal sterna completely pale yellow.

Description.—The following description is based on the holotype female:

Female

Structure: Total body length 11.40 mm; fore wing length 9.52 mm. Head wider than long (length 3.24 mm; width 3.88 mm) (Fig. 13). Labral basal surface with anterolateral lobes slightly upturned, weakly bicallose at apex. Almost all of clypeus below lower tangent of compound eyes, at least 4x as broad as long at midline. Frontal line carinate between antennae, becoming a weakly impressed line shortly above antennae. Scape length 1.48 mm; pedicel as long as F1; F1 longer than wide, longer than F2; F2–4 each about as long as wide; F5–10 progressively longer than wide. Distance from median ocellus to lateral ocellus 0.12 mm; between lateral ocelli 0.36 mm; lateral ocellus to compound eye 0.68 mm, 3 ocellar widths. Gena broader than compound eye in profile (Fig. 14); with strong, acute, ventrally-directed genal projection as long as combined length of F2–4. Hypostomal ridge more developed on anterior half, ridge slightly concave medially. Prementum length 2.35 mm, width 0.65 mm; glossa length 1.92 mm. Median and parapsidal lines moderately impressed on mesoscutum; intertegular distance 2.56 mm. Scutellum longer than metanotum, both longer than propodeal triangle. Basal vein roughly confluent with cu-v; 1m-cu distal to 1r-m (offset by width of a vein); 2r-m distal to 2m-cu (offset by width of a vein). First submarginal cell longer than second and third combined; second not narrowed anteriorly; anterior border of second slightly longer than that of third (Fig. 19). Distal hamuli arranged 3-1-1-1-1-4 (Fig. 15). Inner hind tibial spur with four teeth (not counting apex as a tooth) (Fig. 20).

Color and sculpturing: Mandible yellow, apex and inner margin black. Labrum mostly yellow with margins, basal elevation, and distal process light brown; basal elevation punctate around apical callosities. Clypeus dark brown with metallic green highlights, basally yellow-orange, yellow at mandibular bases; supraclypeal and adjoining paraocular areas yellow-orange, green hints basally; both with surface shining, weakly imbricate, with scattered punctures, these becoming abruptly crowded along upper supraclypeal margin. Face above antennae black with metallic blue-green highlights lateral to antennal bases; confluent punctures over much of surface, except for small, impunctate, polished areas around ocelli and upper eye margin (Fig. 13). Basal two-thirds of scape orange-brown, apical third dark brown; remainder of antenna orange-brown, lighter ventrally. Gena yellow from below a point 1/4 length of eye from top of posterior eye margin; upper posterior portion of gena with sculpturing forming fine, confluent striae, grading below into dense, fine punctures separated by at least the width of a puncture, these becoming irregular and sparse beneath and posteriorly, surface shining and imbricate. Genal projection with apex brown. Postgena impunctate and yellow, surface shining and imbricate. Pronotum yellow dorsally, brown laterally, with long, vertical striae on narrow lateral surface. Mesoscutum black with weak green highlights laterally, small brown patch along posterior border; confluently punctate on lateral thirds, central third granulate anteriorly, the remainder shining with fine, minute punctures becoming progressively sparser posteriorly. Tegula mostly light brown, translucent and smooth, but punctate anteriorly with faint metallic highlights. Wings with membrane yellow-brown, infuscated apically; venation and stigma yellow-brown. Scutellum yellow-brown, with brown margins, punctures as on central third of mesoscutum, interspaces greatly exceeding puncture width. Metanotum blackish-brown with punctures closer than on scutellum. Pleura dark brown on lower third, yellow on mid third and brown with metallic green highlights on upper third; surface somewhat shining, imbricate, densely but irregularly punctate, somewhat rugose on upper mesepisternum. Legs with coxae and trochanters light brown, femora and tibiae dark brown, except fore tibia, and posterior surface of mid tibia; these latter areas and tarsi yellowish-brown.

Propodeal triangle brown with metallic green highlights, regular striae radiating from basal margin, becoming more irregular at apical margin. Propodeal lateral and posterior surfaces dorsally dark brown, ventral third yellow-brown; surface weakly roughened, punctures dense and almost indistinct. Anterior surface of T1 smooth, yellow basally; remainder brown and closely punctate. T2 yellow basally, lateral and apical margins brown; punctures dense laterally on disk, very sparse centrally, apical area closely punctate. T3–4 like T2, punctures very sparse on disc, apical area closely punctate on T3, imbricate on T4. T5 brown with yellow basally, smooth. Sterna pale yellow, semitranslucent, faintly imbricate with some sparse punctures.

Pubescence: Clypeus with scattered long, simple hairs, apicomedial hairs forming long fringe. Lower half of face with short, plumose yellow hairs, these becoming fine, simple, and suberect on upper half, with scattered longer, simple hairs intermixed, these becoming darker dorsally. Supraclypeal area with pubescence similar to that of clypeus on lower half, similar to rest of face on upper half. Gena with short, pale, plumose hairs above, becoming simpler below, and fairly long at lower extreme and along occipital margin; postgena with widely scattered long, simple hairs, and short fine hairs along hypostomal lamella. Mesoscutum with short , fine, suberect hairs, except centrally on disc; these hairs laterally plumose, light-brown; scattered longer, simple, darker hairs intermixed over entire surface. Scutellum with widely scattered long, black hairs. Metanotum with mostly short, pale plumose hairs at base, and a few longer hairs as on scutellum. Pleura with scattered yellow hairs, mostly long and erect, but short, dense, and appressed on pre-episternum and metepisternum. Propodeal lateral and posterior surfaces with a layer of very short, appressed, yellow hairs, some longer hairs on lateral face. Most leg hairs light golden-brown; long on fore and mid trochanter, and ventrally on fore tibia. Mesofemoral brush, fore- and mid-basitarsal brushes golden, mesotibial comb brown. Hairs on outer surfaces of mid and hind basitarsi, and mid and hind tibiae largely black; scopa consisting of pale, highly plumose femoral hairs, and dense, long, simple tibial hairs (a few dorsal tibial hairs weakly plumose). Hind basitarsal brush brown basally, reddish apically, penicillus reddish. T1 with few widely scattered yellow hairs on anterior face and lateral margins. T2–4 with widely scattered, extremely short, simple, black hairs; such hairs becoming more numerous and slightly longer on T3–4. T5 with moderately dense, long, black hairs, and dense golden hairs surrounding pseudopygidial area. Sterna with long hairs on apical borders; hairs of S1–4 white, of S4 mixed white and pale brown; on S5–6 mostly black.

Male

Unknown.

Etymology.—The specific name is in reference to the pale yellow coloration of the abdomen, especially the sterna (Gr. *ochros* = pale yellow).

Xenochlora ***chalkeos*** new species
(Figs. 16–18)

Holotype.—ECUADOR: *Napo:* female, Loreto, 9 August 1991, D. Roubik, flowers and baits (USNM).

Diagnosis.—Clypeus amber. Upper half of face dark brown with metallic copper highlights. Scape amber. Metasomal sterna amber.

Description.—As described for *X. ochrosterna* except as follows:

Female

Structure: Total body length 9.76 mm; fore wing length 8.08 mm. Head wider than long (length 2.72 mm; width 3.00 mm) (Fig. 17). Frontal line carinate between antennae, becoming weakly impressed line half way to median ocellus. Scape length 1.20 mm; pedicel as long as F1, F1 longer than wide, longer than F2; F2–8 each about as long as wide; F9–10 progressively longer than wide, F10 longest. Distance from median ocellus to lateral ocellus 0.14 mm; between lateral ocelli 0.36 mm; lateral ocellus to compound eye 0.48 mm, a little over 3 ocellar widths. Gena broader than compound eye in profile; with genal projection (Fig. 16). Median and parapsidal lines strongly impressed on mesoscutum; intertegular distance 2.08 mm. Scutellum slightly longer than metanotum, both longer than propodeal triangle. Basal vein distal to cu-v by width of vein; 1m-cu basal to 1r-m by width of vein; 2r-m distal to 2m-cu (offset by 2 times width of vein). First submarginal cell longer than second and third combined; second not narrowed anteriorly; anterior border of second as long as that of third. Distal hamuli arranged 2-1-1-1-4 (Fig. 18).

Color and sculpturing: Mandible amber, apex black. Labrum amber. Clypeus amber; supraclypeal area amber; both with surface shining, weakly imbricate, with widely scattered weak punctures. Face amber below antennae, remainder dark brown with metallic copper highlights; confluent punctures over much of surface. Scape amber; remainder of antenna brown. Gena amber from below a point ^{9} of total eye length from top of posterior eye margin; upper posterior portion of gena with sculpturing forming fine punctures separated by the width of a puncture, these disappearing beneath and posteriorly, surface shining and smooth. Genal projection amber. Postgena impunctate and amber, surface shining and smooth. Pronotum amber, with a few vertical striae on narrow lateral surface. Mesoscutum black with strong copper highlights on lateral thirds and posterior border; confluently punctate on lateral thirds, central third weakly imbricate,

posteriorly with weaker punctures becoming progressively more sparse. Tegula amber. Scutellum amber with copper highlights, with punctures minute and sparse, interspaces exceeding a puncture width, integument between smooth. Metanotum amber with punctures closer than on scutellum. Pleura metallic copper red or yellow, surface densely but irregularly punctate, somewhat rugose on upper mesand metepisternum, punctures better defined and separated on hypoepimeron, separated by about a puncture width or less, integument between them smooth. Propodeal triangle brown and metallic copper, regular striae radiating from basal margin. Propodeal lateral and posterior surfaces dark brown, surface densely and minutely punctate. Fore leg amber; mid leg amber except basitarsus brown; hind legs amber except tibia and basitarsus brown. Anterior surface of T1 smooth; remainder closely punctate with brown apical border. T2 amber basally, lateral and apical margins brown; punctures dense laterally on disk, very sparse centrally, apical area closely punctate. T3–4 colored as on T2, punctures very sparse on disk and apical margin of T3, imbricate on T4. T5 brown with amber basally, smooth. Sterna amber, faintly imbricate with some sparse punctures.

Pubescence: Clypeus with scattered long, simple hairs. Supraclypeal area with pubescence similar to clypeus. Lower half of face with hairs similar to those of clypeus; upper half of face with scattered appressed, short, plumose hairs. Vertex and gena with scattered simple hairs; postgena with widely scattered long, simple hairs. Mesoscutum with short, simple, suberect hairs, except centrally on disk; scattered longer, simple gold hairs intermixed on entire surface. Scutellum and metanotum with widely scattered long, gold hairs; shorter hairs over entire surface. Pleura with scattered yellow hairs, long and erect. Propodeal lateral and posterior surfaces with a layer of very short, appressed, golden hairs; lateral surface with longer hairs interspersed. Most leg hairs golden except as indicated in generic description. T1 with a few widely scattered golden hairs on anterior surface and lateral margins. T2–4 with widely scattered, short, simple, golden hairs; such hairs becoming more numerous and slightly longer on T3–4; T4 with interspersed black hairs. T5 with long, black hairs. Sterna with long white to golden hairs.

Male

Unknown.

Etymology.—The specific epithet is the Greek word *chalkeos*, meaning "copper", in reference to the general color of this species.

Xenochlora ianthina (Smith), new combination

Megalopta ianthina Smith, 1861:148; Moure, 1958:182.

Megalopta janthina Dalla Torre, 1896:178. Unjustified emendation of *Megalopta ianthina* Smith, 1861.

Augochlora calliope Cockerell, 1905:37. Synonymy fide Moure (1958).

Halictus janthinus (Smith); Ducke, 1910:363.

Megalopta ianthiana Sakagami, 1964:457. *Lapsus calami* for *Megalopta ianthina* Smith, 1861.

Holotype.—BRAZIL: *Amazonas:* female, Tefé (BMNH); examined by MSE.

Remarks.—This species was redescribed by Moure (1958) as a species of *Megalopta*, and will not be repeated here. *Xenochlora ianthina* (as *Megalopta*) was reported by Bates (*in* Smith, 1861) as nesting in a tree branch (Schrottky, 1902; Moure, 1958; Sakagami, 1964).

Xenochlora nigrofemorata (Smith), new combination
(Figs. 21–22)

Megalopta nigrofemorata Smith, 1879:82; Moure, 1958:183.

Halictus nigrofemoratus (Smith); Ducke, 1910:363.

Holotype.—BRAZIL: *Amazonas:* female, Tefé (BMNH); examined by MSE.

Additional material.—GUYANA: 1 female, George-town, March 1965, M. Alvarenga (SEMC).

Remarks.—Like *Xenochlora ianthina*, this species was described by Moure (1958).

Key to the Species of *Xenochlora*

1 Lower half of face pale yellow, upper half metallic green; pleura entirely pale yellow; legs entirely pale yellow except apices of mesotibia and metatibia black ..... *X. nigrofemorata*

— Face variably colored, but lower half not pale yellow; pleura usually mostly dark brown or if pale, then with strong metallic copper highlights; legs amber to dark brown 2

2 Face entirely dark brown with brassy highlights; wing membrane hyaline ..... *X. ianthina*

— Face with lower half amber to yellow-orange, upper half dark-brown to black; wing membrane yellow-brown, infuscated apically 3

3 Sterna amber; clypeus amber; upper half of face dark brown with copper highlights ..... *X. chalkeos*

— Sterna pale yellow; clypeus dark brown; upper half of face black with metallic blue-green highlights ..... *X. ochrosterna*

Genus *Megalopta* Smith

Identification.—The following key to subgenera is to be used in addition to that of Eickwort (1969) and therefore the couplet numbers are our own, not having been modified from Eickwort's keys.

Females

1 Scopa present; basitibial plate present; mandible stout, bidentate, usually with supplementary teeth on inner margin ..... *Megalopta* (sensu stricto)

— Scopa absent; basitibial plate absent; mandibles simple, long and slender, without supplementary teeth .... *Noctoraptor*

Males

1 F2 about equal in length to F3; clypeus with apical margin and scape anteriorly white; antennal socket diameter much greater than ocular-antennal socket distance ..... *Megalopta* (sensu stricto)

— F2 two-thirds length of F3; clypeus and scape completely black; antennal socket diameter less than ocular-antennal socket distance ..... *Noctoraptor*

Noctoraptor new subgenus

Type species.—*Megalopta (Noctoraptor) byroni* Engel, Brooks and Yanega, new species.

Diagnosis.—Large and darkly colored bees generally resembling other species of *Megalopta*. However, females of *Noctoraptor* can be readily distinguished from other *Megalopta* by the parasitic features—reduction of scopa, large scythe-shaped mandibles, and absence of basitibial plate. Males are easily separated by the facial characters given in the key above.

Description.—The following description is based on the types of the two included species:

Female: Epistomal sulcus acute, protruding slightly into clypeus (Fig. 25); clypeus convex and strongly transverse (three times broader than long), supraclypeal area slightly bulging; preoccipital ridge rounded; inner orbit of compound eye weakly emarginate, eyes enlarged; eyes not convergent below; eye hairs short; ocelli greatly enlarged; ocellar furrow present; vertex swollen; gena as wide as compound eye in profile (Fig. 26); labral basal elevation suborbiculate with slight medial impression; teeth absent; mandible simple, long and slender without supplementary teeth; hypostomal ridge slightly lamellate, slightly protruding beyond posterior margin of head, anterior angle rounded; prementum normal; V-shaped brace of salivary plate absent; segments 2+3 of labial palp together slightly longer than 1; glossa long. Pronotal lateral angle not produced, orthogonal; lateral ridge carinate; dorsal ridge rounded; mesoscutum broadly rounded anteriorly; lip low and rounded; metanotum with posterior margin bowed out, so metanotum distinctly longer along midline than laterally; propodeal triangle very short, much shorter than metanotum, almost transversely linear and strongly declivious; propodeal dorsal ridge rounded; lateral ridge rounded, ridges slightly divergent; propodeum slightly narrowed posteriorly; pit of posterior surface narrow. Marginal cell with apex acute (Fig. 23); sixteen distal hamuli closely and evenly spaced on anterior margin (Fig. 24). Anterior basitarsal brush present; inner surface of hind tibia gently convex; inner hind tibial spur pectinate, with six teeth excluding apex (Fig. 28); femoral scopa absent (Fig. 27); basitibial plate absent. Cleft of T5 broad; pseudopygidial area relatively short.

Male: As described for the female except as follows: Mandible normal, not long; labrum with basal elevation short, transverse (Fig. 29); compound eyes convergent below, broader than gena in profile; scape short; F1 about as long as F2; antenna long, reaching back to metanotum. Inner hind tibial spur serrate. Metasoma elongate. Apical margin of S3 bilobed medially (Fig. 31); apical margin of S4 deeply emarginate and laterally notched, postgradular setae clumped; apical margin of S5 broadly notched, mediobasally with long, narrow peg which passes ventrally through base of S4 emargination; apex of S6 notched; apical margin of S7 bilobed (Fig. 32); apical margin of S8 with median projection; spiculum narrow. Male terminalia as in Figures 32, 33; basal gonostylar process absent; parapenial lobe present; venter of penis valve with prong.

Etymology.—The name *Noctoraptor* is derived from words meaning night (L. *noctis*) and thief (L. *raptor*). The name is designated as feminine.

Megalopta (Noctoraptor) ***byroni*** new species
(Figs. 23–33)

Holotype.—PANAMÁ: *Panamá:* female, Canal Zone, Barro Colorado Island, 17 August 1977, R.B. and L.S. Kimsey (SEMC).

Allotype.—PANAMÁ: *Panamá:* male, Barro Colorado Island, [no date], M. Naumann (SEMC).

Paratype.—PANAMÁ: *Panamá:* 1 female, BCI [Barro Colorado Island], 9 January 1978, light trap, D. Roubik (SEMC).

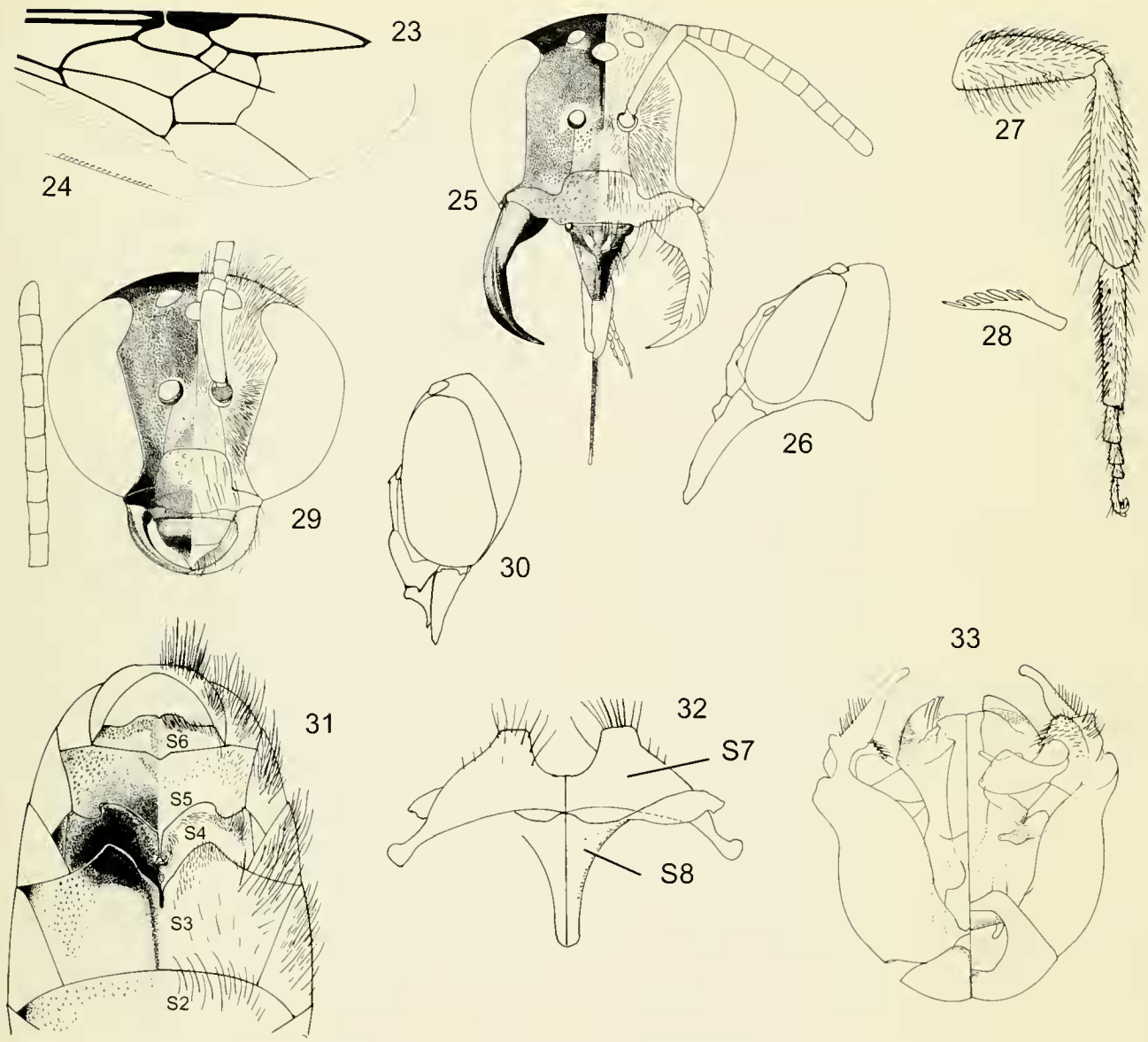
Additional material.—PANAMÁ: *Panamá:* 1 female, BCI [Barro Colorado Island], 10 EIN [?] 1978, D. Roubik (STRI). This female is badly damaged, missing several legs and with the wings torn apart.

Diagnosis.—Basal area of labrum weakly bicallose. Gena slightly narrowed than compound eye in profile, with a blunt but distinct projection. Tarsi yellow.

Description.—The following description is based on the holotype female and allotype male:

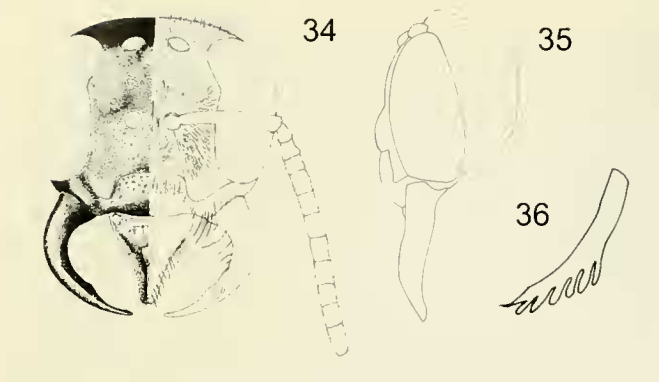
Female

Structure: Total body length 13.32 mm; fore wing length 10.72 mm. Head wider than long (length 3.24 mm; width 3.96 mm) (Fig. 25). Mandible gently curving and tapering



Figs. 23–33. *Megalopta byroni*: 23–28.—Female holotype. 23.— Forewing. 24.—Distal hamuli on anterior margin of hind wing. 25.—Head, front view; left side shows punctation, right pubescence. 26.—Head, side view. 27—Hind leg, anterior view. 28.—Inner hind tibial spur. 29–33.—Male allotype. 29.—Head, front view; left side shows punctation, right pubescence. 30.—Head, side view. 31.—Metasomal sterna, ventral view. 33.—Genital capsule; left half is dorsal, right is ventral view.

towards apex, but somewhat more incurved at apex. Labrum with apex of basal region weakly bicallose. Clypeus broader than long, with narrow basal impressed line, distal half projecting below lower tangent of compound eyes; supraclypeal area about as wide as long. Frontal line carinate, becoming a strongly impressed line about one ocellar diameter before median ocellus. Scape length 1.54 mm; pedicel longer than F1; F1 about as long as wide, longer than F2; F2 wider than long; F3–10 each longer than wide, each longer than F2, F10 longest. Distance from median ocellus to lateral ocellus 0.12 mm; between lateral ocelli 0.44 mm; lateral ocellus to compound eye 0.36 mm, almost 2 ocellar widths. Gena narrower than compound eye in profile; with strong projection (Fig. 26). Prementum length 2.39 mm; width 0.30 mm. Median and parapsidal lines weakly impressed; intertegular distance 2.56 mm. Scutellum almost twice as long as metanotum; about five times as long as dorsal propodeum, which is very shallowly concave. Metanotum much longer along midline than laterally. Basal vein slightly distal to cu-v (offset by about width of vein) (Fig. 23); 1r-m confluent with 1m-cu; 2r-m distal to 2m-cu (offset by about width of vein). Second and third



Figs. 34–36. *Megalopta noctifurax*, female holotype: 34.—Head, front view; left side shows punctation, right pubescence. 35.—Head, side view. 36.—Inner hind tibial spur.

submarginal cells together subequal to first; second not narrowed anteriorly; anterior border of second slightly shorter than anterior border of third. Inner hind tibial spur with 6 teeth (not including apex as a tooth).

Color and sculpturing: Mandibles red-brown. Labrum brown. Clypeus dark brown; surface smooth, finely imbricate basally with few weak punctures. Scape, pedicel, and first flagellomere dark brown, remainder of antenna brown. Supraclypeal area dark brown, smooth with with scattered weak punctures. Face dark brown and punctate, with metallic green highlights, punctures separated by less than width of a puncture, integument otherwise smooth. Punctures becoming weak on gena; gena dark brown; postgena impunctate and dark brown. Mesosoma and metasoma colored as on majority of head. Mesoscutum strongly punctate laterally, punctures separated by less than the width of a puncture; centrally punctures weak and scattered. Tegula dark brown and smooth, finely imbricate on inner margin. Scutellum with minute punctures separated by twice the width of puncture or more, integument between smooth. Metanotum sculptured as on scutellum, except punctures more closely packed. Pre-episternum and mesepisternum coarsely punctate, punctures separated by less than the width of a puncture. Hypoepimeral area smooth anteriorly, punctate posteriorly. Metepisternum with scattered minute punctures, weakly costate anteriorly. Legs dark red-brown, except tarsi yellow. Wings yellow, veins and pterostigma translucent reddish-brown. Propodeal triangle smooth. Propodeal lateral surface punctate, punctures becoming weaker posteriorly and on posterior surface. Metasoma dark brown; terga finely imbricate, laterally with scattered weak nodules, such nodules also scattered over entire surface of T4–5; sterna finely imbricate and with scattered weak nodules.

Pubescence: Face with moderately long, simple, erect to suberect hairs; such hairs more widely scattered on postgena. Setation of flagellomeres fairly uniform, except that scale-like setae are sparser on dorsal surfaces. Mesoscutum, scutellum, and metanotum with scattered, dark, simple hairs; also with shorter golden hairs. Pleura with scattered simple, long, dark, hairs; also with short, plumose, appressed, silvery hairs (except on hypoepimeral area). Propodeal lateral and posterior surfaces as on pleura. Legs with hairs simple, pale golden, and frequently long on ventral surfaces. Anterior tegula with pale, plumose hairs basally, fine dark hairs more laterally. T1 with long hairs on anterior face. Remaining terga with short, suberect, golden hairs becoming progressively longer and darker on more apical terga, till mostly dark hairs on T5; hairs on apex of T5 golden. Sterna with long, simple, pale hairs.

Male

As described for the female, except as follows: Total body length 13.52 mm, total fore wing length 10.16 mm. Head length 2.72 mm; width 3.28 mm (Fig. 29). Distal third of clypeus projecting below tangent of compound eyes. Scape length 1.08 mm; pedicel shorter than F1; F1 about as long as wide, shorter than F2; F2 longer than wide; F3–10 longer than wide, each longer than F2, F10 longest. Distance from median ocellus to lateral ocellus 0.08 mm; between lateral ocelli 0.32 mm; lateral ocellus to compound eye 0.24 mm, about 1 ocellar width. Gena much broader than compound eye in profile; without genal projection (Fig. 30). Intertegular distance 2.15 mm. S2–S6 as in figure 31. Male terminalia as in Figures 32, 33.

Coloration like female, except labrum yellow and scape and pedicel dark brown with remainder of the antenna brown. Sculpturing as in female, except sterna smooth.

Etymology.—This species is named in memory of our dear friend Byron A. Alexander. Byron contributed significantly to the studies of parasitic bees, especially the Nomadinae. Therefore, we remember him by naming this, the first known nocturnal cleptoparasitic bee, in his memory.

Megalopta (Noctoraptor) ***noctifurax*** new species
(Figs. 34–36)

Holotype.—ECUADOR: [*Napo*]: female, Coca, May 1965, L. Peña (CUIC).

Diagnosis.—Basal area of labrum with two distinct calli at apex. Gena broader than compound eye in profile, without a projection. Tarsi reddish brown.

Description.—As for *M.* (*N.*) *byroni* except as follows:

Female

Structure: Total body length 13.00 mm, total fore wing length 11.85 mm. Head length 3.54 mm; width 4.15 mm (Fig. 34). Distal three-fifths of clypeus projecting below tangent of compound eyes. Scape length 1.85 mm; pedicel shorter

than F1; F1 about as long as wide, shorter than F2; F2 longer than wide; F3–10 longer than wide, each longer than F2, F10 longest. Distance from median ocellus to lateral ocellus 0.25 mm; between lateral ocelli 0.73 mm; lateral ocellus to compound eye 0.54 mm, one ocellar width. Gena much broader than compound eye in profile; without genal projection (Fig. 35). Intertegular distance 2.7 mm. Mandible strongly curved near middle (towards base), apical portion nearly straight, not much tapering from base to apex. Labrum with two well-separated calli at apex of basal region. Clypeus with distinct swelling at apex of epistomal lobe, basal impressed line absent. Gena without a distinct projection, almost as broad as eyes, and somewhat more bulging than in *M. byroni* (best seen in dorsal view) (Fig. 35). Metanotum only slightly longer at middle than laterally, dorsal propodeum not concave. Inner hind tibial spur with 6 teeth (not including apex as a tooth) (Fig. 36).

Color and sculpturing: Face dark brown with metallic green highlights strong below; surface somewhat dulled (also on clypeus, supraclypeal area, and vertex), with very crowded, shallow punctures. Legs entirely dark brown, except ventral surface of fore tibia and fore tarsi reddish.

Pubescence: Pleura with scattered simple, long, pale, hairs, those on hypoepimeron dark, and with a tendency to become plumose, especially on pre-episternum and hypoepimeron; short, plumose, appressed, silvery hairs not obscuring surface as completely as in *M. byroni*.

Male

Unknown.

Etymology.—The specific epithet is a combination meaning "inclined to steal in the night" (L. *noctis* = night, L. *furax* = inclined to steal), in reference to its nocturnal cleptoparasitic habits.

Genus *Megommation* Moure

Identification.—In order to correctly identify the subgenera of *Megommation* we offer the following key to be used in place of Eickwort's (1969) key.

Females

1 Scopa present, hairs on anterior margin of tibia and femur with long apical branches (cf. Fig. 4); mandible normal with subapical tooth (Fig. 38); inner hind tibial spur variable 2

— Scopa absent, all hairs simple (Fig. 52); mandible long and simple (Fig. 49); inner hind tibial spur serrate .... *Cleptommation*

2 Inner hind tibial spur serrate (Fig. 51); ocellar-ocular distance two-thirds ocellar diameter .... *Megommation* (sensu stricto)

— Inner hind tibial spur pectinate (Fig. 40); ocellar-ocular distance at least 1 ocellar diameter. 3

3 Basitibial plate short and rounded, borders not defined; thorax metallic green-blue, metasoma dark with green-blue metallic highlights ..... *Megaloptina*

— Basitibial plate of normal length, narrowly rounded, posterior border well defined; both thorax and metasoma bright metallic green ..... *Stilbochlora*

Males

1 Dense patch of plumose setae posterior to propodeal spiracle (Fig. 55) 2

— Evenly spaced sparse setae posterior to propodeal spiracle 3

2 Apical margins of S2–3 simple; ocellar-ocular distance about equal to 1 ocellar diameter ..... *Megaloptina*

— Apical margins of S2–3 with medial projection (Fig. 56: S3 depicted); ocellar-ocular distance equal to about 2 ocellar diameters ..... *Cleptommation*

3 Ocelli greatly enlarged, ocellar-ocular distance 0.66 ocellar diameter .....*Megommation* (sensu stricto)

— Ocelli normal, not greatly enlarged, (Fig. 41), ocellar-ocular distance 1.4 ocellar diameters ..... *Stilbochlora*

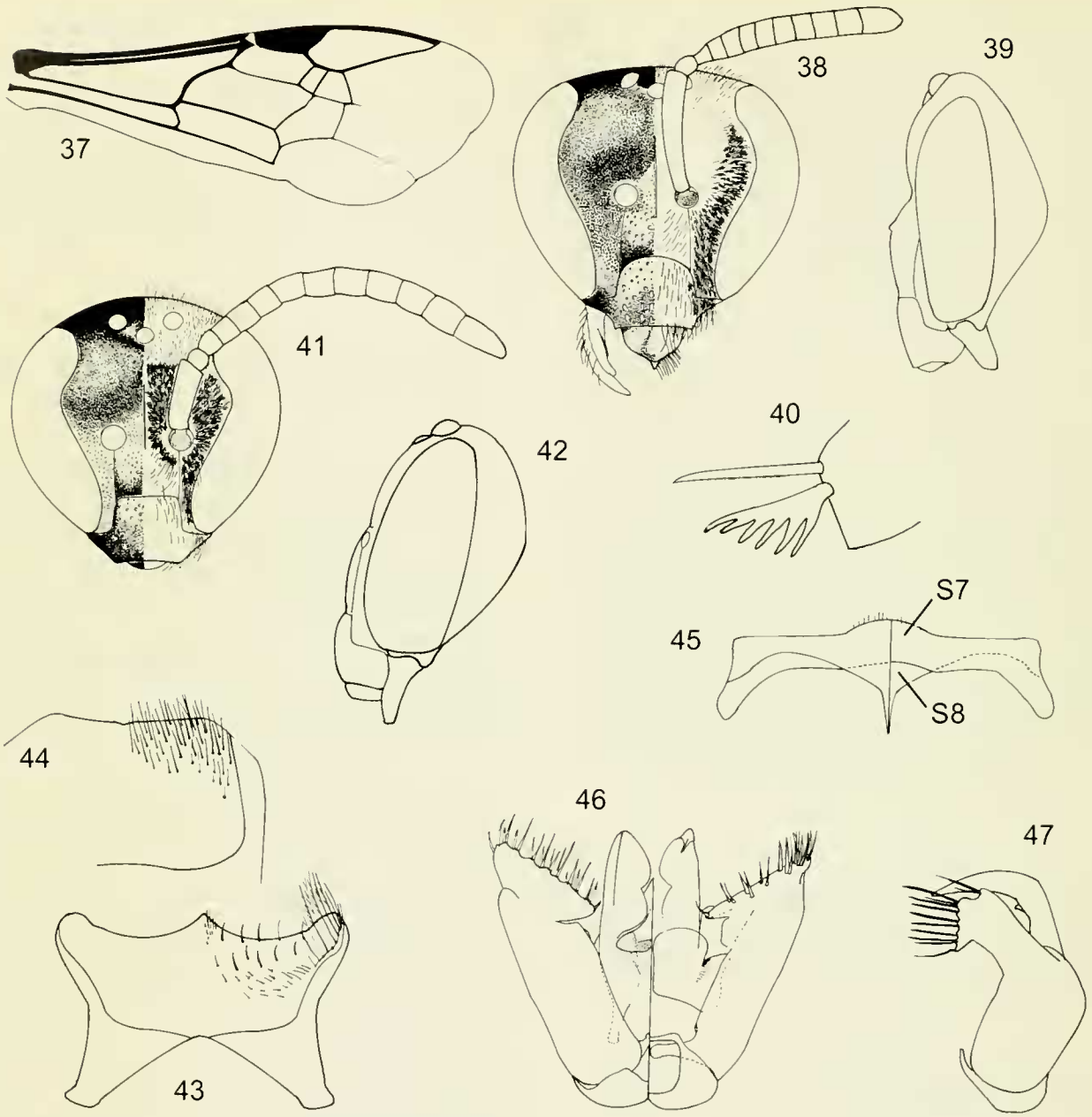
Stilbochlora new subgenus

Type species.—*Megommation* (*Stilbochlora*) *eickworti* Engel, Brooks and Yanega, new species.

Diagnosis.—This subgenus can be distinguished from the other subgenera by the combination of small ocelli, bright metallic green thorax and metasoma in both sexes, the absence of a dense tuft of plumose hairs posteriad to the propodeal spiracle in males, and the basitibial plate with the posterior border well defined in females.

Description.— The following description is based on the type series of the only included species:

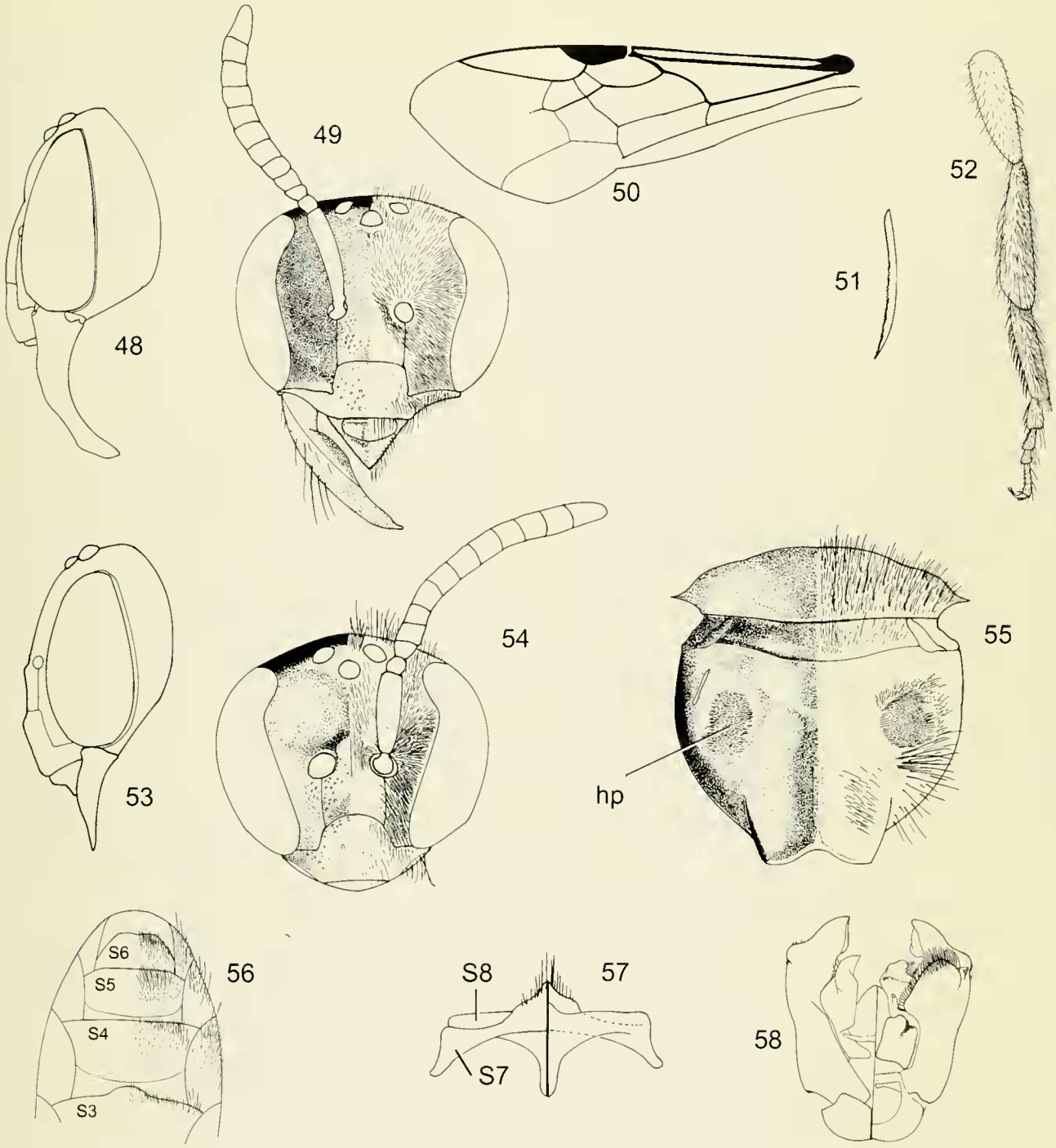
Female: Epistomal sulcus roughly orthogonal (Fig. 38); clypeus and supraclypeal area bowed; preoccipital ridge rounded; inner orbit of compound eye moderately emarginate; eyes moderately convergent below; eye hairs short (seen only through the microscope); ocelli not enlarged; ocellar furrow absent; labral basal elevation tear drop-shaped; distal process broadly triangular; teeth absent; mandible with strong subapical tooth (Fig. 38); hypostomal ridge carinate, anterior angle rounded, projecting beyond posterior margin of head; glossa extremely short. Pronotal lateral angle obtuse, not produced; lateral ridge rounded; dorsal ridge carinate; mesoscutum broadly rounded; lip low and projecting forward over pronotum; propodeal triangle subequal in length to scutellum, smooth with short



Figs. 37–47. *Megommation eickworti:* 37–40.—Female holotype. 37.—Forewing. 38.—Head, front view; left side shows punctation, right pubescence. 39.—Head, side view. 40.—Hind tibial spurs; inner is pectinate, outer serrate. 41–47.— Male allotype. 41.—Head, front view; left side shows punctation, right pubescence. 42.—Head, side view. 43.—S4, ventral view. 44.—S6, ventral view. 45.—S7 and S8; left half is dorsal, right is ventral view. 46.—Genital capsule; left half is dorsal, right is ventral view. 47—Genital capsule, lateral view.

basal striae; propodeal dorsal ridge rounded; lateral ridge rounded, ridges slightly divergent; propodeum slightly narrowed posteriorly; pit of posterior face narrow. Marginal cell apex acute (Fig. 37). Inner hind tibial spur pectinate, all teeth long; scopa formed of dense, long, plumose hairs on hind femur and trochanter; basitibial plate narrowly rounded, not extremely short; posterior margin well defined, anterior margin obsolescent. Pseudopygidial area and cleft of T5 short; anterior surface of T1 convex with short, triangular basal depression.

Male: As in the female except as indicated below: Labrum without basal elevation; mandible simple; compound eyes more strongly convergent below (Fig. 41); gena about half width of compound eye in profile (Fig. 42); scape short; F1 shorter than F2; antennal length normal. Inner hind tibial spur serrate. Apical margin of S4 with medial translu-



Figs. 48–58. *Megommation minutum:* 48–52.—Female. 48.—Head, side view. 49.—Head, front view; left side shows punctation, right pubescence. 50.—Forewing. 51.—Inner hind tibial spur. 52.—Hind leg, anterior view. 53–58.—Male. 53.—Head, side view. 54.—Head, front view; left side shows punctation, right pubescence. 55.—Mesosoma, posterior view; hp = hair patch. 56.—S3–S6, ventral views. 57.—S7 and S8; left half is dorsal, right is ventral view. 58.—genital capsule; left half is dorsal, right is ventral view.

cent projection, postgradular setae laterally clumped (Fig. 43); apex of S5 unmodified; apex of S6 shallowly notched (Fig. 44); apical margin of S7 completely fused into S8, indistinct; apical margin of S8 with broad projection; spiculum narrow. Parapenial lobe present, extremely small; venter of penis valve with prong; dorsal gonostylus partially membranous; male terminalia as in Figures 46, 47.

Etymology.—The name is a combination of *stilbo* (Gr. glitter, shine) and *chlora* (Gr. green), from *Augochlora*, type genus of the Augochlorini. The name is feminine.

Megommation (Stilbochlora) ***eickworti*** new species
(Figs. 37–47)

Holotype.—PERU: *Madre de Díos:* female, Cuzco Amazónico, 15 km NE Puerto Maldonaldo, 20 June 1989, 200 m, J. S. Ashe, R. Leschen, #169, flight intercept trap (SEMC).

Allotype.—PERU: *Madre de Díos:* male, Cuzco Amazónico, 15 km NE Puerto Maldonaldo, 22 June 1989, 200 m, J. S. Ashe, R. Leschen, #202, flight intercept trap (SEMC).

Paratypes.—BOLIVIA: *Beni:* 1 female, Romansos, 1 km N. junction Río Paraguá, 30 July 1964, J. K. Bouseman and L. Lussenhop (AMNH). 1 female, Río Itenez opposite Costa Marques (Brazil), 30–31 August 1964, J. K. Bouseman and L. Lussenhop (AMNH). BRAZIL: *Amazonas:* 1 female, Manaus, 5 April 1989, Ulysses B. (DZUP). *Mato Grosso:* 1 female, Sinop, October 1976, M. Alvarenga (AMNH). 1 female, Cáceres, 7 November 1985, C. Elias (DZUP). COLOMBIA: *Guaviare:* 1 female, Reserva Nukak Nukak, Río Inirida, 2°10′35″ N, 71°10′58″ W, Bosque de Rebalse (Inundable), Caño Cucuy, 200 m, malaise trap, 12 February 1996, F. Fernández (IHUM). ECUADOR: *Sucumbios:* 19 females, 4°30′ S, 76°30′ W, Sacha Lodge, dates from 22 February, 4–14 March, 3–13 April, 24 May–3 June, 10–21 October, 21–31 October, 1994, 290 m, malaise trap, P. Hibbs (SEMC). 12 females, same except dates from 12 February to 13 June (LACM). PERU: *Madre de Díos:* 54 females, 1 male, same as holotype except collected from 13 June–19 July 1989, including collection numbers 35, 59, 134, 169, 184, 193, 199, 202, 227, 248, 291, 310, 326, 382, 518, 521, and 522 (SEMC, CUIC, USNM); 1 female, Reserva Tambopata, February 1987, malaise trap, D. W. Davidson (LACM); 1 female, same except 22–30 May 1995, S. Cameron and J. Whitfield (UADE).

Diagnosis.—As for the subgenus.

Description.—The following description is based on the holotype female and allotype male:

Female

Structure: Total body length 7.02 mm; fore wing length 4.60 mm. Head slightly wider than long (length 1.66 mm; width 1.76 mm) (Fig. 38). Clypeus slightly broader than long, distal half projecting below lower tangent of compound eyes; supraclypeal area as wide as long. Frontal line carinate between antennae, disappearing shortly above antennal sockets. Scape length 0.78 mm; pedicel about as long as F1; F1 slightly longer than wide, longer than F2; F2–3 about as long as wide; F4 about as long as wide, longer than F3; F5 about as long as wide, longer than F4; F6–10 longer than wide, each progressively longer towards apex. Distance from median ocellus to lateral ocellus 0.08 mm; between lateral ocelli 0.24 mm; lateral ocellus to compound eye 0.22 mm (3 ocellar widths). Gena slightly narrower than compound eye in profile (Fig. 39). Prementum length 1.28 mm; width 0.1 mm. Median and parapsidal lines moderately impressed; intertegular distance 1.32 mm. Scutellum longer than metanotum; only very slightly longer than propodeal triangle. Basal vein distal to cu-v (offset by 2.5 times width of vein); 1r-m confluent with 1m-cu (Fig. 37); 2r-m distal to 2m-cu (offset by 4 times width of vein). First submarginal cell longer than second and third combined; second not narrowed anteriorly; anterior border of second slightly longer than that of third. Distal hamuli arranged 2-1-2. Inner hind tibial spur with 5 teeth, not including apex as a tooth.

Color and sculpturing: Mandible yellow brown, red at apex. Labrum brown. Clypeus mostly metallic blue-green; distal margin bordering base of labrum brown; scattered weak punctures, integument between smooth. Supraclypeal area metallic blue-green; scattered weak punctures, integument between smooth. Face metallic blue-green, closely punctate, punctures separated by width of a puncture or less, integument smooth. Punctures becoming weak on gena; postgena weakly costate-reticulate; both metallic blue-green. Mesosoma metallic blue-green. Mesoscutum and scutellum with scattered minute punctures, integument between smooth. Tegula pale and translucent. Metanotum impunctate and weakly roughened. Pleura with widely scattered punctures. Legs brown, except tarsi which are yellow and protibia which is mostly yellow on the outer surface. Wings hyaline with slight infuscation apically; veins strong and dark brown. Propodeal triangle smooth with a few short basal striae. Propodeal lateral and posterior surfaces imbricate. Metasoma metallic blue with greenish highlights, with dark reddish-brown background evident, mostly on T1; apical margins dark brown and semitranslucent. T1 smooth, remaining terga finely imbricate. Sterna brown; finely imbricate with scattered weak nodules on apical halves.

Pubescence: Pubescence white. Face with short, simple hairs, such hairs becoming longer and plumose on gena. Postgena with scattered short, simple hairs. Mesoscutum and scutellum with short, simple hairs; posterior border of scutellum additionally with longer, plumose hairs. Metanotum with long, plumose hairs like those on posterior border of scutellum. Pleura with simple hairs. Propodeal lateral and posterior surfaces with long, plumose hairs and short, simple, appressed hairs. T1 with simple erect hairs on anterior two thirds, posterior third with widely scattered short, suberect hairs. T2–5 with short, simple appressed hairs, not obscuring the surface; scattered suberect hairs, becoming longer on lateral surfaces. Sterna with simple hairs, relatively long and dense.

Male

As described in the female except as follows: Total body length 7.06 mm; forewing length 4.76 mm. Head length

1.66 mm; width 1.68 mm (Fig. 41). Scape length 0.46 mm; pedicel 0.19 mm, as long as F1; F1 1.4 times as long as F2; F3–10 subequal; F11 1.57 times as long as F3–10, 0.46 mm. Distance from median ocellus to lateral ocellus 0.06 mm; between lateral ocelli 0.22 mm; lateral ocellus to compound eye 0.22 mm. Prementum length 1.28 mm; width 0.08 mm. Intertegular distance 1.16 mm. S4 apicomedially produced (Fig. 43). S6 apicomedially weakly emarginate (Fig. 44). Male terminalia as in Figures 45–47.

Mandible white with red apex. Labrum white. Distal third or half of clypeus white, remainder metallic blue. Frontal line obscure. Basal areas of tibiae and tarsi pale yellow.

Etymology.—This specific epithet honors the late Dr. George C. Eickwort; friend, colleague, and world's authority on augochlorine bees.

Variation.—Coloration of this Amazonian species varies from metallic blue to green, with the development of the green coloration being the variable quantity; the areas with the greatest tendency toward green are the face below the ocelli, postgena, pronotum, margins of the mesonotum and metanotum, upper lateral surfaces of the propodeum, and the ventral mesepisternum. The two Brazilian specimens are mostly brassy-golden with greenish tints, especially on the thorax, and have slightly darker legs than the Peruvian material.

Cleptommation new subgenus

Type species.—*Megalopta minuta* Friese, 1926, present designation.

Diagnosis.—In general appearance this subgenus resembles minute species of *Megalopta*. It can be readily distinguished from *Megalopta*, however, by the elongated prementum, normally spaced distal hamuli, bowed clypeus and supraclypeal area, serrate inner hind tibial spur, normally sized ocelli, absence of an ocellar furrow, and absence of the basitibial plate. This subgenus is apparently sister to *Megommation* (*Megaloptina*). Both subgenera share a dense tuft of plumose setae behind the propodeal spiracle and similar male genitalia. *Cleptommation* can be separated easily from this subgenus by its color (most of the head and all of the scutum is metallic green and the rest of the body is yellow-brown to dark brown), the various parasitic features (e.g., reduced scopa), the serrate inner hind tibial spur, and the projections on the apical margins of S2–3 in males. *Megaloptina* has a completely metallic green head and thorax and brown metasoma with green to blue metallic highlights. One notable exception is a strange nonmetallic female of *M.* (*Megaloptina*) *ogilviei* (Cockerell) from Brazil, Pará, Obidos (SEMC).

Description.—The following description is based on the type, and only species:

Female: Epistomal sulcus roughly orthogonal (Fig. 49); clypeus and supraclypeal area weakly bowed; preoccipital ridge rounded; inner orbit of compound eye moderately emarginate; eyes weakly convergent below; eye hairs short; ocelli not enlarged; ocellar furrow absent; labral distal process broadly triangular, keel absent; basal elevation absent; teeth absent; mandible simple, long, fairly broad, blade-like; hypostomal ridge carinate, projecting slightly beyond posterior margin of head, anterior angle rounded; glossa extremely short, barely reaching past galeal apex. Pronotal lateral angle obtuse, not produced; lateral ridge rounded; dorsal ridge rounded; mesoscutum broadly rounded anteriorly, lip low and rounded; propodeal triangle subequal in length to scutellum and without striae; propodeal dorsal ridge rounded; lateral ridge rounded, ridges not divergent; propodeum slightly narrowed posteriorly; pit of posterior surface narrow. Marginal cell apex acute (Fig. 50). Inner hind tibial spur serrate (Fig. 51); scopa reduced to scattered simple hairs on hind trochanter and femur (Fig. 52); basitibial plate absent. Pseudopygidial area of T5 extremely short, apical margin with weak cleft.

Male: As in the female with the following exceptions: Labrum without distal process; mandible not as long; clypeus and supraclypeal area more strongly bowed (Fig. 53); F1 longer than F2; antennal length normal (Fig. 54). Dense tuft of plumose setae posterior to propodeal spiracle (Fig. 55). Metasoma slightly elongated, as in figure 56; S2 slightly projected medially along apical margin, projection broad and very short; S3 projected medially along apical margin, projection longer and narrower than on S2; apex of S4 unmodified, postgradular setae not clumped; apex of S5 unmodified; apex of S6 weakly notched; apical margin of S7 medially produced (Fig. 57); apical margin of S8 medially produced; spiculum broad. Parapenial lobe present; venter of penis valve with prong; dorsal gonostylus partially membranous; male terminalia as in Figures 57, 58.

Etymology.—*Cleptommation* is based on *clepto* (Gr. *klepto* = steal) and *-ommation* from the name of the genus, *Megommation*. The name is neuter.

Megommation (*Cleptommation*) *minutum* (Friese), new combination
(Figs. 48–58)

Megalopta minuta Friese, 1926:125.

Holotype.—BRAZIL: *Amazonas:* male, Tefé, 25 September 1904, Ducke (ZMHB).

Additional material.—COSTA RICA: *Alajuela:* 1 female, 1 male, Bijagua, 20 km S. Upala, 16 February 1991, F.D. Parker (EMUS). *Heredia:* 1 female, Chilamate, 75 m, December 1989–March 1990, Hanson and Godoy (EMUS).

Limón: 1 male, 16 km W. Guápiles, 400 m, April 1989, P. Hanson (EMUS). *Puntarenas:* 1 female, Golfo Dulce, 24 km W. Piedras Blancas, 200 m, January 1992, Hanson (EMUS). 1 female, same except April–May 1992 (EMUS). 1 female, same except March 1992 (EMUS). 1 female, same except February–March 1993 (EMUS). Unknown Province: 1 male, Estrella Valley, 100 ft., 11 September 1923 (DZUP). ECUADOR: *Pichincha:* 1 male, Tinalandia, Santa Domingo, 14 June 1976, S. and J. Peck (SEMC). FRENCH GUIANA: 1 male, Saül, 7 km N, Les Eaux Claires, 220 m, 3°39'46" N, 53°13'19" W, 31 May–3 June 1997; J.Ashe, and R.Brooks, FG1AB97-123 ex: flight intercept trap. PANAMÁ: *Coclé:* 1 male, 7.2 km NE El Copé, 730 m, 0.8°37' N, 80°35' W, 20 May–7 June 1995, R. Brooks and J. Ashe, #140, flight intercept trap (SEMC). *Colón:* 2 males, 15 km N. jct. Escobal and Piña Rds., ca 30 m, 2 June 1996, J. Ashe and R. Brooks, #121, SM0016800, SM0016799, flight intercept trap (SEMC). 1 female, Barro Colorado Island, 0.9°11' N, 79°51' W, 27 April 1963, C. and M. Rettenmeyer, malaise trap (SEMC). 2 females, same except 3 July 1994, D. Banks, flight intercept trap (SEMC). 1 female, same except 8 July 1994 (SEMC). 2 females, same except 22 July 1994 (SEMC). 1 female, 1 male, same except 6 August 1994 (SEMC). *Darién:* 1 female, Cana Biological Station, 550 m, 7°45' 18" N, 77°41' 6" W, 7–9 June 1996, J. Ashe and R. Brooks, #114, SM0011439, flight intercept trap (SEMC). 2 males, same except 7–9 June 1996, #112, SM0011446, SM0011448 (SEMC). 1 male, same except #065, SM0016740. PERU: *Madre de Díos:* 1 male, Tambopata Reserve, 270 m, 22–30 May 1995, S. Cameron and J. Whitfield (UADE). 1 female, Cuzco Amazónico, 15 km NE Puerto Maldonado, 200 m, 23 June 1989, J. Ashe and R. Leschen, #308, flight intercept trap (SEMC). 1 male, same except 13 June 1989, R. Leschen, #34, malaise trap (SEMC).

Diagnosis.—As for the subgenus.

Description.—The following description is based on a female and male with a typical color pattern:

Female

Structure: Total body length 9.16 mm; fore wing length 6.72 mm. Head wider than long (length 2.12 mm; width 2.6 mm) (Fig. 49). Clypeus wider than long, distal half extending below lower tangent of compound eye; supraclypeal area slightly wider than long. Frontal line strongly carinate between antennae, becoming a weakly impressed line shortly above level of antennae. Scape length 0.96 mm; pedicel about as long as F1; F1 about as long as wide, longer than F2; F2 wider than long; F3 only slightly wider than long, longer than F2; F4–8 about as wide as long; F9 and F10 longer than wide; apical flagellomere longest. Distance from median ocellus to lateral ocellus 0.1 mm; between lateral ocelli 0.36 mm; lateral ocellus to compound eye 0.36 mm, about 2.5 ocellar widths. Gena slightly narrower than compound eye in profile (Fig. 48). Median and parapsidal lines strongly impressed; intertegular distance 1.72 mm. Scutellum longer than metanotum. Propodeal triangle longer than metanotum; slightly longer than scutellum. Basal vein slightly distal to cu-v (offset by width of vein) (Fig. 50); 1r-m confluent with 1m-cu; 2r-m strongly curved, distal to 2m-cu (offset by 5 times width of vein). First submarginal cell roughly as long as second and third combined, on posterior margin; second narrowed anteriorly; anterior border of third 2.5 times longer than anterior border of second. Distal hamuli arranged 3-1-1-2.

Color and sculpturing: Mandible yellow with red apex. Clypeus yellow, green highlights basally; weak punctures over smooth integument. Supraclypeal area sculptured as on clypeus, brilliant metallic green. Remainder of head brilliant metallic green; face covered with minute punctures, separated by twice the width of a puncture; punctures weaker and smaller on gena; postgena finely imbricate. Antenna yellow. Pronotum yellow-orange. Mesoscutum dark metallic green with coppery highlights; minutely punctate, integument between smooth. Tegula light brown and translucent. Scutellum yellow-orange to slightly darkened and greenish, with green highlights; sculpturing as on mesoscutum. Metanotum similar in coloration to scutellum, though typically darker; surface weakly granular. Pleura yellow-orange with metallic green varying from only a faint darkened spot on the lower mesepisternum, to hypoepimeral area entirely green metallic, mesepisternum green metallic anteriorly with only posterior third yellow-orange, and metepisternum darkened with metallic highlights; minutely punctate, integument between punctures smooth. Legs yellow-orange similar to body, tarsi somewhat paler. Wings faintly smoky with weak greenish reflections, veins and pterostigma brownish and somewhat translucent, subcosta darker. Propodeum yellow-orange; propodeal triangle finely imbricate and shiny; lateral and posterior surfaces minutely punctured with smooth integument between. Metasoma yellow-orange, except apical margins of terga which are light-brown. Terga yellow-orange except along posterior borders of T1–3 which are brown or light brown; surface imbricate. Sterna yellow-orange and imbricate.

Pubescence: Head with simple, yellow hairs; hairs more scattered on postgena. Face with appressed or suberect, plumose, yellow hairs. Mesoscutum with fairly dense, very short hairs among which are scattered short, simple hairs; a few such hairs longer and slightly darker on scutellum and metanotum. Pleura with scattered, moderately, long, simple hairs. Propodeal lateral and posterior surfaces as on pleura. Apex of outer surface of mesotibia and metatibia with dense patch of black hairs; hairs otherwise yellow-orange. T1 with long, simple hairs on anterior surface. T2–5 with suberect, simple, yellow-orange hairs. Sterna with long, simple hairs along apical borders.

Male

As described for the female, except as follows: Total body length 9.46 mm; forewing length 6.40 mm. Head length 1.90 mm; width 2.22 mm (Fig. 54). Scape length 0.92 mm. Distance from median ocellus to lateral ocellus 0.08 mm; between lateral ocelli 0.30 mm; lateral ocellus to compound eye 0.26 mm, 2 ocellar widths. Gena about half of compound eye width in profile (Fig. 53). Prementum length 1.34 mm; width 0.08 mm. Intertegular distance 1.5 mm. Thorax posteriorly as in figure 55. Black patches of hair on apices of mesotibia and metatibia absent. Sternal hairs scattered; longer and subappressed on S6. S3–6 as in figure 56. Male terminalia as in Figures 57, 58.

Variation.—The specimens from Peru have their T1 basal half amber, but apical half dark brown and T2–6 (or through T7 in males) all dark brown.

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